

ABSTRACT

A semiconductor optical amplifier for amplifying an input optical signal is disclosed. The optical amplifier module includes a plurality of the semiconductor optical amplifiers, and the semiconductor optical amplifier includes a substrate, a first clad layer deposited on
5 the substrate, an active layer deposited on the first clad layer having a plurality of sections with different band gaps arranged in a longitudinal direction thereof, and a second clad layer deposited on the active layer.